

REMARKS

This Amendment responds to the Office Action dated February 17, 2006 in which the Examiner rejected claims 1-9 under 35 U.S.C. §103.

As indicated above, claim 1 has been amended in order to make explicit what is implicit in the claim. The amendment is unrelated to a statutory requirement for patentability.

Claim 1 claims a flying type thin-film magnetic head comprising a write head element, an overcoat layer and a heat-block layer. The write head element has a coil conductor and a yoke. A write current flows through the coil conductor. The overcoat layer is laminated on the write head element. The heat-block layer is formed in the overcoat layer and is made of a material with a heat conductivity that is lower than a heat conductivity of the overcoat layer. The heat-block layer is formed between the write head element and a trailing edge of the thin-film magnetic head to reduce the protrusion of the trailing edge.

Through the structure of the claimed invention having a heat-block layer formed between the write head element and a trailing edge of the thin-film magnetic head, as claimed in claim 1, the claimed invention provides a magnetic head with a low-flying height which reduces protrusion of the trailing edge due to thermal expansion. The prior art, does not show, teach or suggest the invention as claimed in claim 1.

Claims 1-9 were rejected under 35 U.S.C. §103 as being unpatentable over *Takao et al.* (U.S. Patent 6,455,174).

Takao et al. appears to disclose in FIG. 13 a schematic arrangement illustrating a specified embodiment of the recording and reproducing head. The

recording and reproducing head 210 comprises a main head body 120 and a laser light source 127 for heating the medium. The laser light source 127 is a semiconductor laser having an oscillation frequency of 460 nm. The main head body 120 includes an air slider 121, and it also includes a recording magnetic head (magnetic coil) 122 and a reproducing MR head 123 which are carried on the air slider 121. The air slider 121 is made of a ceramic material (or transparent glass). The use of the air slider 121 makes it possible to allow the main head body 120 to float over the medium surface while giving a predetermined spacing distance therefrom. In this embodiment, the recording and reproducing head 210 was designed so that the main head body 120 floated over the surface of the medium at a height of 50 nm during the recording and reproduction. With reference to FIG. 13, the recording magnetic head 122 is a single magnetic pole head capable of applying the magnetic field in the perpendicular direction with respect to the medium surface. The recording magnetic head 122 comprises a magnetic coil 108 and an annular core 105. The core 105 is constructed by using a ferromagnetic material NiFe having a large high frequency magnetic permeability. As shown in FIG. 13, the core 105 is fitted such that its outer circumference is joined to the inner circumference of a through-hole 130 which is formed through the slider from the upper surface to the lower surface thereof. The magnetic coil 108 is composed of copper wire. The magnetic coil 108 is provided at a lower portion of the core 105 to surround the outer circumference of the core 105. The data can be recorded on the medium by generating the external magnetic field modulated depending on the recording data by using the recording magnetic head 122 constructed as described above. The recording magnetic head 122 is capable of generating a magnetic field of 500 Oe at

the maximum. (Column 16, line 39 through column 17, line 9). The main head body 120 includes a heat block layer 126a which is formed between the reproducing MR head 123 and the recording magnetic head 122. The heat block layer 126a is constructed by using ceramic having a low coefficient of thermal conductivity to reduce the influence of the heat generated by the magnetic coil 108, on the reproducing MR head 123. A heat release member 126b, which is composed of Al having a high coefficient of thermal conductivity, is formed on the upper surface of the main head body. The heat release member 126b makes it possible to release, to the outside of the head, the heat generated by the magnetic coil 108. (Column 17, lines 30-41).

Thus, *Takao et al.* merely discloses a heat blocking layer 126a formed between a reproducing MR head 123 and a recording magnetic head 122 in order to reduce the influence of heat generated by the magnetic coil 108 on the reproducing head 123 (column 17, lines 30-36). Nothing in *Takao et al.* shows, teaches or suggests a heat-block layer formed between a write head element and a trailing edge of the thin-film magnetic head to reduce protrusion of a trailing edge as claimed in claim 1. Rather, *Takao et al.* merely discloses a heat block layer 126a formed between a reproducing head 123 and a recording magnetic head 122.

Since nothing in *Takao et al.* shows, teaches or suggests a heat-block layer formed between a write head element and a trailing edge of a magnetic head as claimed in claim 1, Applicant respectfully requests the Examiner withdraws the rejection to claim 1 under 35 U.S.C. §103.

Claims 2-9 depend from claim 1 and recite additional features. Applicant respectfully submits that claims 2-9 would not have been obvious within the meaning

of 35 U.S.C. §103 over *Takao et al.* as least for the reasons as set forth above.

Therefore, Applicant respectfully requests the Examiner withdraws the rejection to claims 2-9 under 35 U.S.C. §103.

The prior art of record, which is not relied upon, is acknowledged. The references taken singularly or in combination do not anticipate or make obvious the claimed invention.

Thus, it now appears that the application is in condition for reconsideration and allowance. Reconsideration and allowance at an early date are respectfully requested.

If for any reason the Examiner feels that the application is not now in condition for allowance, the Examiner is requested to contact, by telephone, the Applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed within the currently set shortened statutory period, Applicant respectfully petitions for an appropriate extension of time. The fees for such extension of time may be charged to Deposit Account No. 02-4800.

In the event that any additional fees are due with this paper, please charge
our Deposit Account No. 02-4800.

Respectfully submitted,

BUCHANAN INGERSOLL PC

Date: April 24, 2006

By: 

Ellen Marcie Emas

Registration No. 32,131

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620